

**WHAT IS CLAIMED IS:**

1. A method for providing a user with traffic information, comprising the steps of:
  - a) a plurality of vehicles broadcasting their registration messages;
  - b) creating an ad-hoc network between vehicles on the basis of registration messages
  - 5 broadcast by the vehicles;
  - c) at least one Road Side Equipment (RSE) receiving the registration messages broadcast by the vehicles, and collecting traffic information included in the registration messages; and
  - d) the RSE transmitting the traffic information to a traffic information service center.
- 10 2. The method as set forth in claim 1, wherein the registration messages include vehicle motion information.
3. The method as set forth in claim 1, further comprising the steps of:
  - the RSE broadcasting IDentifier (ID) and position information of the RSE to the vehicles; and
  - 15 enabling the RSE to be contained in the ad-hoc network.
4. The method as set forth in claim 3, further including the steps of:
  - b1) the vehicles broadcasting warning messages over the ad-hoc network; and
  - b2) the RSE receiving the warning messages and collecting traffic information included in the warning messages.
- 20 5. The method as set forth in claim 3, further comprising the steps of:
  - e) the traffic information service center transferring the traffic information to other RSEs; and
  - f) the other RSEs transferring the traffic information to nearby vehicles over the ad-hoc network.
- 25 6. A method for at least one Road Side Equipment (RSE) creating an ad-hoc network between the RSE and a plurality of vehicles to collect traffic information, comprising the steps of:

a) vehicles broadcasting their registration messages, and receiving the registration messages at the RSE;

b) registering the registration messages to a node management table and creating the ad-hoc network between the RSE and the vehicles; and

5 c) collecting traffic information from the registration messages and transferring the collected traffic information to the traffic information service center.

7. The method as set forth in claim 6, wherein the registration messages include vehicle motion information.

8. The method as set forth in claim 6, wherein the step (b) includes the steps of:

10 b1) the RSE broadcasting a registration message having IDentifier (ID) and position information of the RSE to the vehicles; and

b2) the vehicles registering the registration message received from the RSE to their node management table.

9. The method as set forth in claim 6, further comprising the steps of:

15 d) the RSE receiving warning messages broadcast from the vehicles over the ad-hoc network;

e) the RSE transferring the warning message to the traffic information service center.

10. A method for providing a user with traffic information, comprising the steps of:

a) vehicles broadcasting their registration messages;

20 b) the RSE receiving the registration messages and forming an ad-hoc network associated with the vehicles on the basis of the registration messages; and

c) the RSE receiving traffic information from a traffic information service center and transferring the traffic information to the vehicles contained in the ad-hoc network.

25 11. The method as set forth in claim 10, wherein the registration messages include vehicle motion information.

12. The method as set forth in claim 10, wherein the step (b) includes the steps of:

b1) the RSE broadcasting a registration message of the RSE to the vehicles; and

b2) the vehicles receiving the registration message of the RSE.

13. An apparatus for providing a user with traffic information, comprising:

a plurality of vehicles broadcasting their registration messages and creating the ad-hoc network on the basis of the registration messages;

5       at least one Road Side Equipment (RSE) for receiving the registration messages broadcast from the vehicles and collecting traffic information from the registration messages; and

a traffic information service center for receiving the traffic information from the RSE.

14. The apparatus as set forth in claim 13, wherein the RSE broadcasts a registration  
10       message having its own position information to the vehicles and participates in the ad-hoc network.

15. A Road Side Equipment (RSE) apparatus for collecting traffic information from a plurality of vehicles, and transferring the collected traffic information to the traffic information service center in a system for providing a user with traffic information, said RSE  
15       apparatus comprising:

a Radio Frequency (RF) unit for receiving registration messages broadcast from the vehicles and broadcasting a registration message of the RSE;

a controller for creating an ad-hoc network associated with the vehicles on the basis of the registration messages of the vehicles and generating traffic information from the  
20       registration messages; and

a communication interface for transferring the traffic information to the traffic information service center.

16. The apparatus as set forth in claim 15, wherein the controller registers the registration messages of the vehicles to a node management table.

25       17. The apparatus as set forth in claim 15, wherein the RF unit receives warning messages broadcast from the vehicles over the ad-hoc network, and the controller creates the traffic information by referring to the warning messages.

18. The apparatus as set forth in claim 17, wherein the communication interface receives traffic information from the traffic information service center, and the controller transfers the traffic information received from the traffic information service center to the vehicles contained in the ad-hoc network.

5           19. The apparatus as set forth in claim 15, further comprising:  
a position information receiver for detecting position and time information of the RSE.

20. The method as set forth in claim 1, wherein the vehicle is selected from one of a  
10 car, a boat, a plane, a motorcycle, an animal, and a human.

21. The method as set forth in claim 6, wherein the vehicle is selected from one of a car, a boat, a plane, a motorcycle, an animal, and a human.

15           22. The method as set forth in claim 10, wherein the vehicle is selected from one of a car, a boat, a plane, a motorcycle, an animal, and a human.

23. The apparatus as set forth in claim 13, wherein the vehicle is selected from one of a car, a boat, a plane, a motorcycle, an animal, and a human.

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24. The apparatus as set forth in claim 15, wherein the vehicle is selected from one of a car, a boat, a plane, a motorcycle, an animal, and a human.